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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ISSING, GREGORY C

ART UNIT

PAPER NUMBER

3662

DATE MAILED: 09/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/014,553

Applicant(s)

JENABI, MASUD

Examiner

Gregory C. Issing

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 46-65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 65 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) 46-64 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is not clear how a quadrature hybrid coupler controls the first series of phase shifters and the 90 degree phase shifter. The claim merely sets forth a group of elements on a chip; the claim fails to clearly and distinctly set forth any physical relationship between the elements. The claim sets forth a first series of phase shifters and at least one attenuator to control the scan angle and linear polarization but fails to show how this can be achieved; that is, it is not clearly defined how a series of phase shifters and an attenuator can control the scan angle and linear polarization of an RF signal. Likewise, it is unclear how a 90 degree phase shifter controls the circular polarization of an RF signal.

3. Claim 46 is objected to because of the following informalities: in line 7, the language "outputting a first and second based on signals" appears should read "outputting a first and second signal based on signals." Appropriate correction is required.

4. Claim 65 is allowed.

5. Claims 46-64 would be allowable if rewritten or amended to overcome the objection, set forth in this Office action.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fassett et al (4,088,970) in view of Fasset (3,665,480), Gould (5,568,158), and Mohuchy (5,933,158).

Fassett et al teach the transmitter chip, as definite, substantially as claimed, including a device for controlling the phase and polarization of microwave signals for use in a phased array antenna, known in the art to form and steer a collimated beam of energy (1:8-16, Figure 1). Fassett et al further shows in Figure 4, a transmitter module for orthogonally feeding (122/124) an antenna element and including hybrid couplers (111/117), a series of controllable phase shifters (110/112), and a further phase shifters (114/120) to control circular polarization.

Fassett et al do not show the attenuator and serial to parallel converter nor specify the integration on a single monolithic transmitter chip.

Mohuchy suggests a circuit configured on a GaAs substrate capable of controlling the relative phase and amplitudes of RF type signals using a serial to parallel controller for controlling a plurality of elements effecting polarization control on a monolithic integrated circuit used in a microwave transmitter circuit. The vector modulator circuit of Mohuchy modulates the amplitude and phase characteristics of RF signals for transmitting RF signals.

Fassett further suggests that direction of the polarization of orthogonally fed radiators is determined by the independently adjustable phase and amplitude of the signals applied to the feeds thereof. Thus, Fassett further suggests the inclusion of attenuators in the path between the transmitter and the antenna feed in order to control the RF signal.

Gould teaches an electronic variable polarization antenna feed including the teachings of the interchangeability of amplifiers and attenuators (5:32-55) to adjust the ratio of amplitude two signal paths coupled to orthogonal feed ports of an antenna element, wherein the choice of the use of variable gain amplifiers or variable attenuator is dependent upon applications, conditions, or user.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Fassett et al by incorporating amplitude control in the phase shifter/polarization control using attenuators in view of the combined teachings of Fassett and Gould who suggest the independent control of the two channel orthogonal feeds of an antenna element so as to achieve the desired ratio therebetween in generating an accurate polarization control, wherein the amplitude relationship may be derived via the use of variable gain amplifiers or variable attenuators. Moreover, it would have been

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obvious to one of ordinary skill in the art at the time the invention was made further incorporate the design on a single monolithic chip in view of the trend to minimize size and reduce weight and the teachings of Mohuchy wherein such minimization in design is aided by the use of a serial to parallel controller to provide the various control signals necessary on the reduced size chip.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory C. Issing whose telephone number is (571)-272-6973. The examiner can normally be reached on Monday - Thursday 6:00 AM- 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (571)-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Gregory C. Issing
Primary Examiner
Art Unit 3662

gci